UNIVERSIDAD DE SAN CARLOS DE GUATEMALA
FACULTAD DE INGENIERÍA
ESCUELA DE CIENCIAS Y SISTEMAS
LABORATORIO ORGANIZACIÓN COMPUTACIONAL

PROYECTO 1

Grupo 3	
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Auxiliar: ROBINSON PÉREZ

Fecha: 30/12/2022

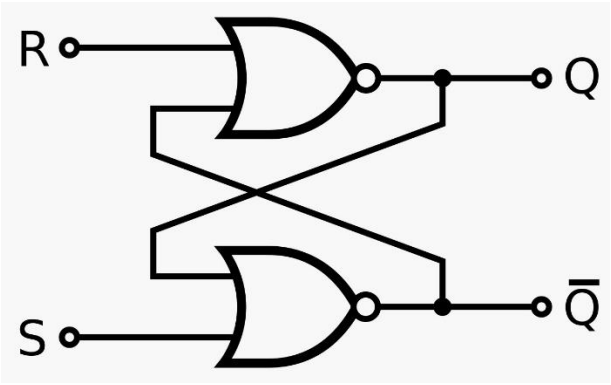
Tablas de verdad y Mapas de Karnaugh

Luces LED

Entrada	Luces LED
1	1
0	0

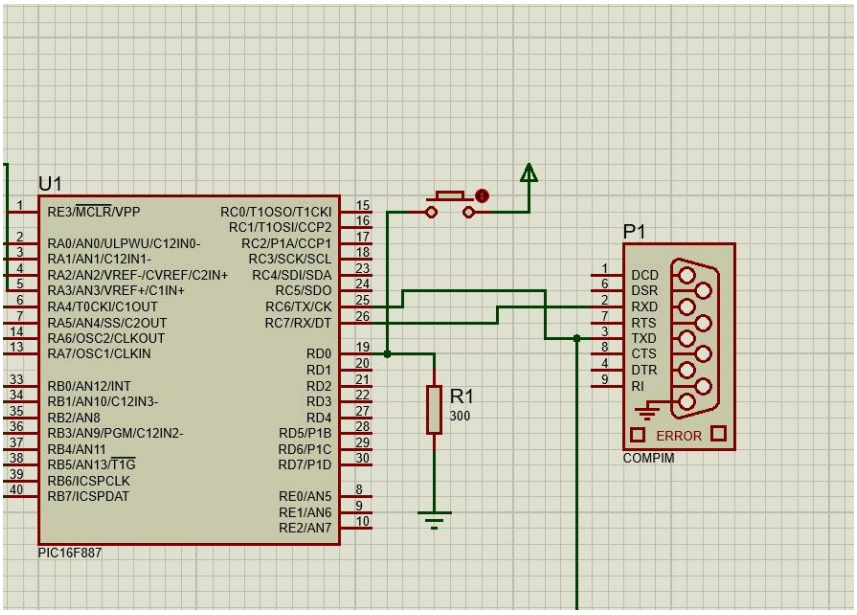
Latch SR

S	R	Q_n	$\overline{Q_n}$	
0	0	Q_{n-1}	$\overline{Q_{n-1}}$	Sin cambio
0	1	0	1	RESET
1	0	1	0	SET



Diagramas

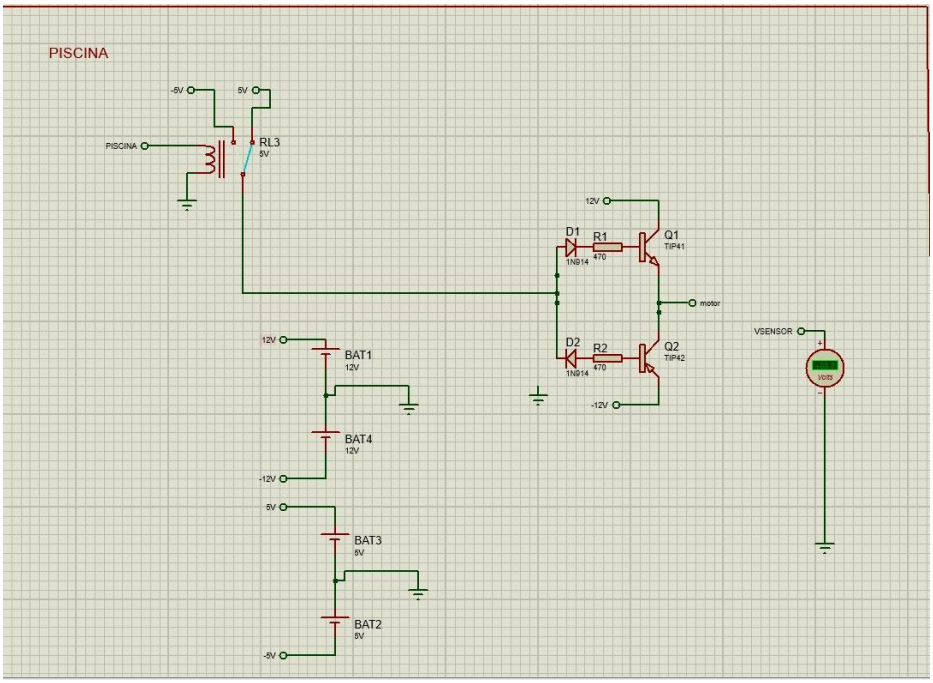
Conexión serial



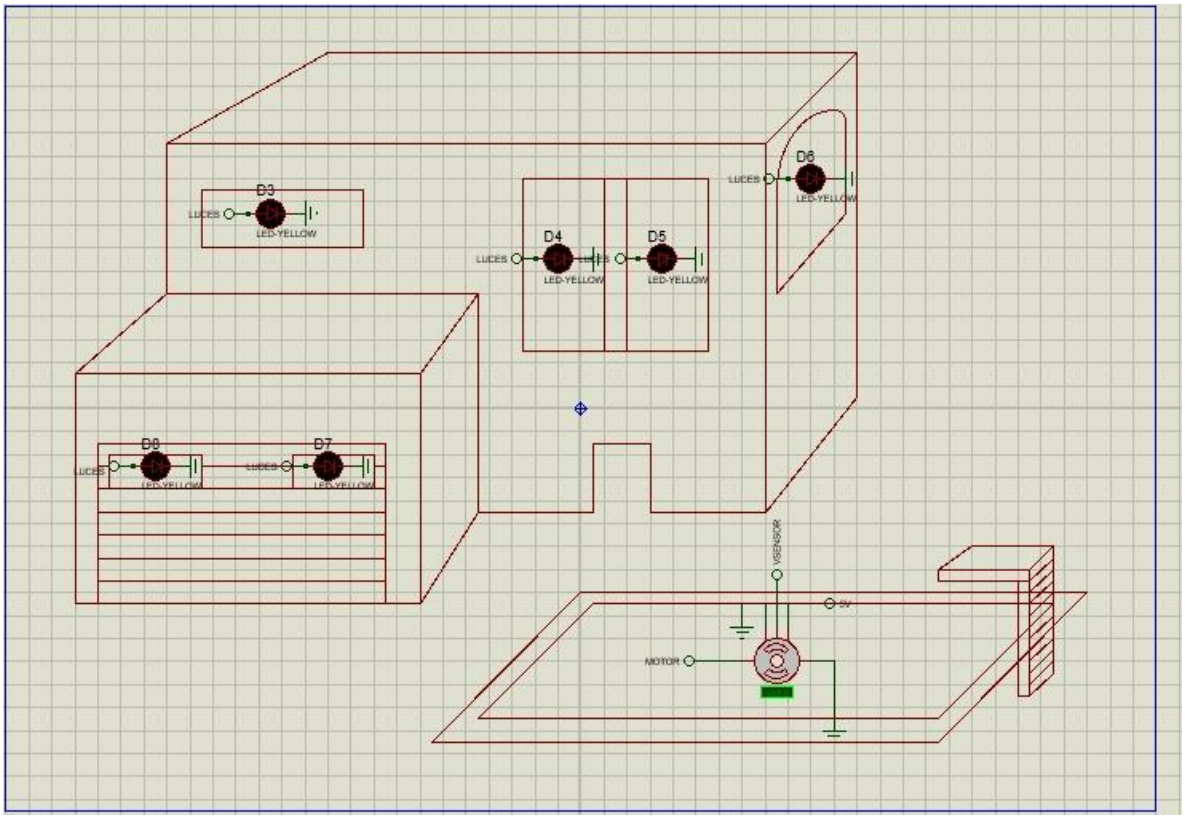
Programación de la conexión serial

```
//**************************************************************************
// Función principal
//**************************************************************************
void main(void) {
    setup();            // Realiza la configuración de puertos
    OSCCONbits.IRCF = 0b111;    // Oscilador 8 MHz
    initUART();         // Configuración para el módulo UART

    while(1){
        while (PORTDbits.RD0 == 0){
            if(PIR1bits.RCIF == 1){
                PORTB = RCREG;              // Muestra el ASCII en el puerto
                PIR1bits.RCIF = 0;
                PORTDbits.RD7 = 1;
                __delay_ms(500);
                PORTDbits.RD7 = 0;
                }

        }
        if (PORTDbits.RD0 == 1){
            TXREG = PORTA;
            __delay_ms(500);
        }

    }

}
//**************************************************************************
// Configuración de puertos
//**************************************************************************
void setup(void){
    ANSEL = 0;
    ANSELH = 0;

    TRISA = 1;
    PORTA = 0;

    TRISB = 0;
    PORTB = 0;

    TRISD = 0b00000001;
    PORTD = 0;
}
//**************************************************************************
// Configuración de módulo UART
//**************************************************************************
void initUART(void){
    // Configuración velocidad de baud rate
    SPBRG = 12;

    TXSTAbits.SYNC = 0;     // Modo asíncrono
    RCSTAbits.SPEN = 1;     // Habilitar módulo UART

    TXSTAbits.TXEN = 1;     // Habilitar la transmisión
    PIR1bits.TXIF = 0;

    RCSTAbits.CREN = 1;     // Habilitar la recepción
}
```

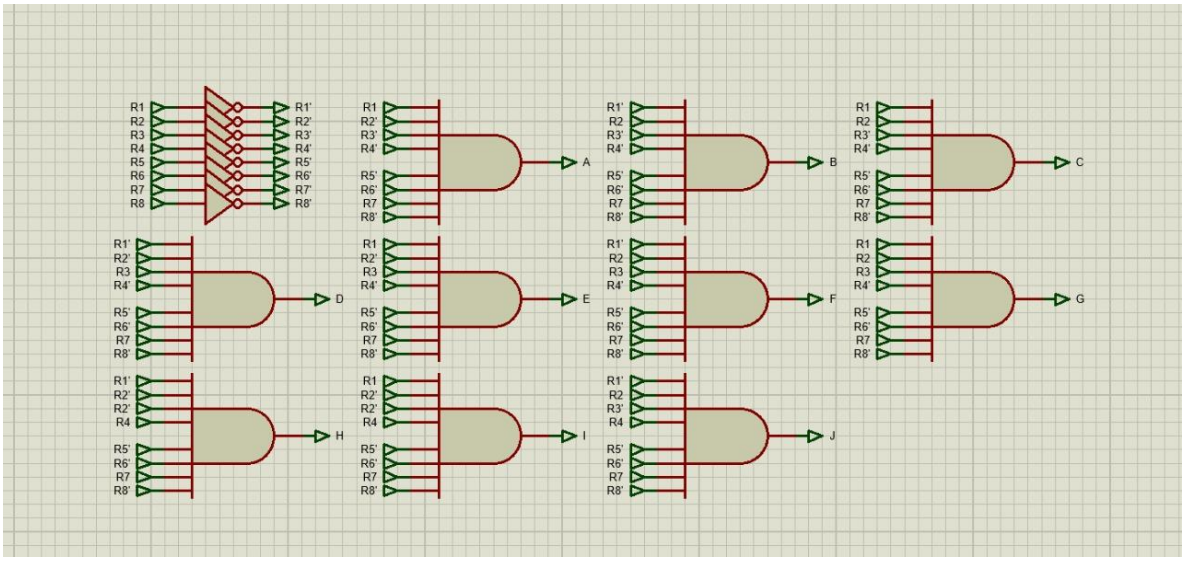
Circuito del motor



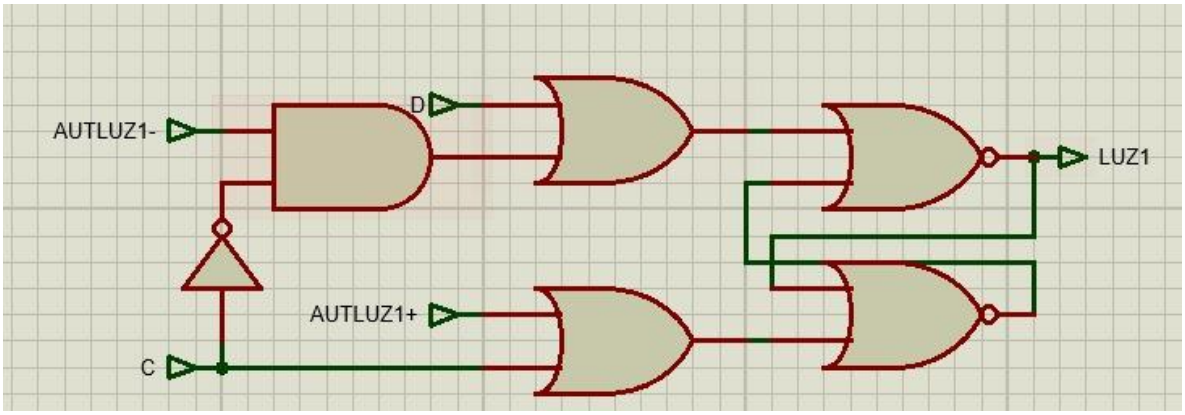
Diseño de casa



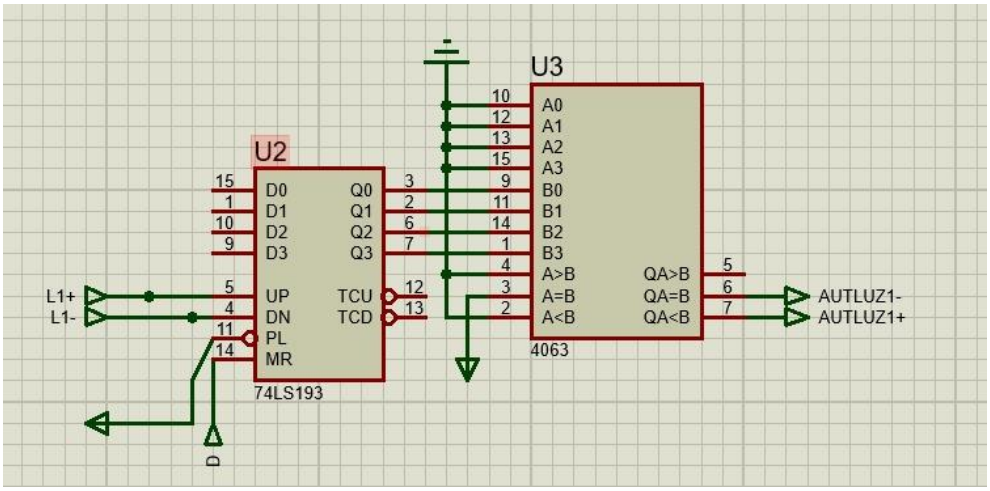
Reconocimiento de caracteres ASCII



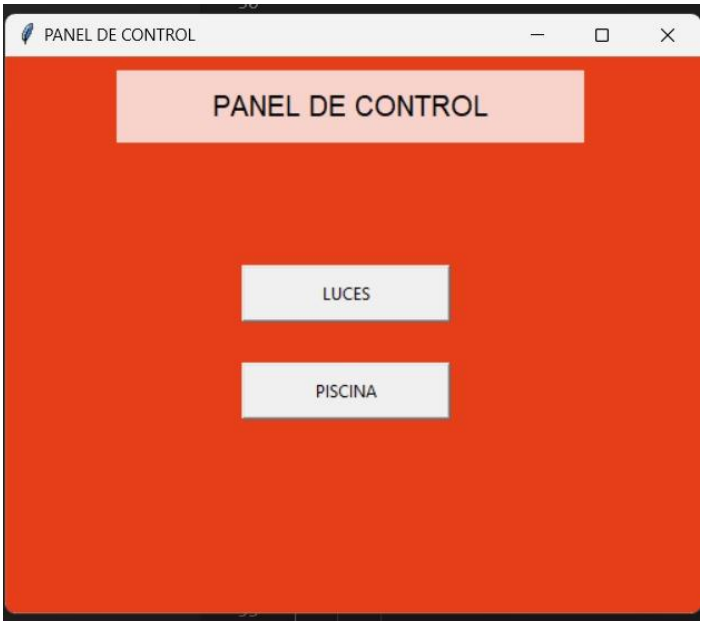
Automatización de luces



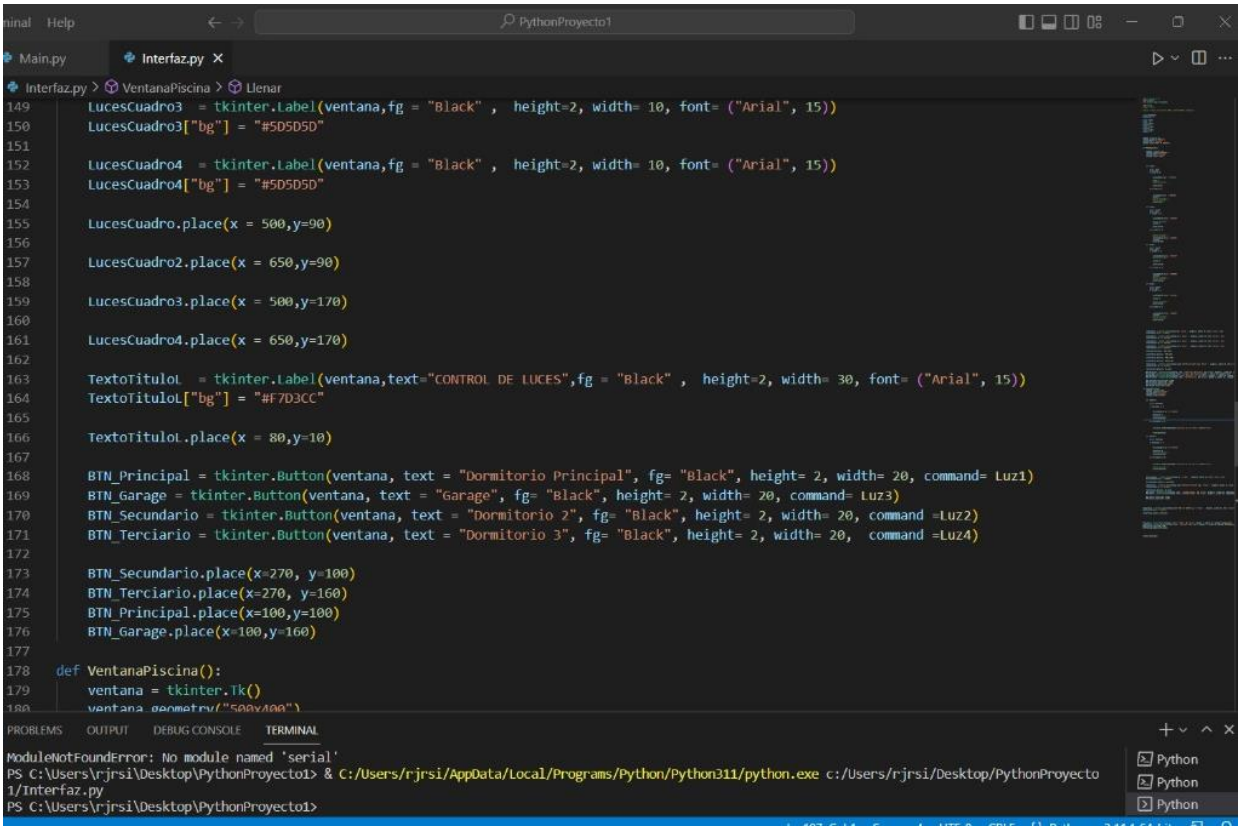
Contador de personas en habitación



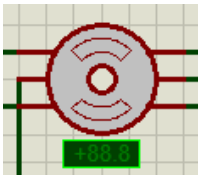
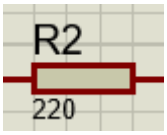
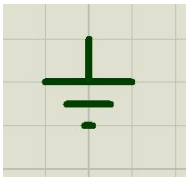
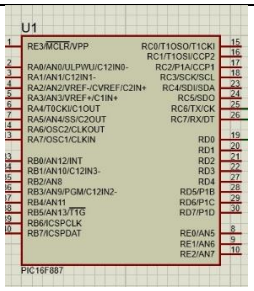
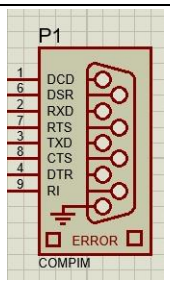
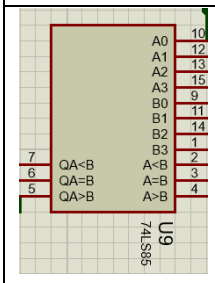
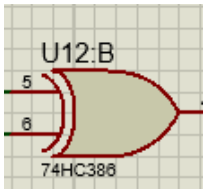
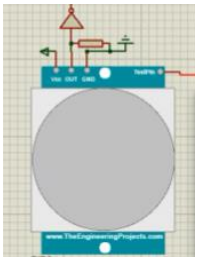
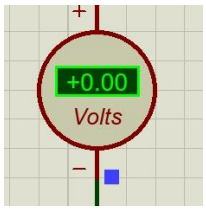
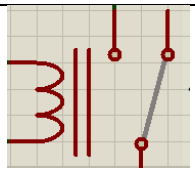
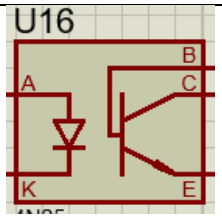
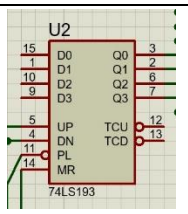
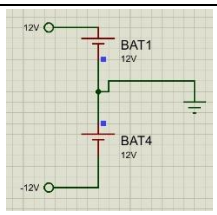
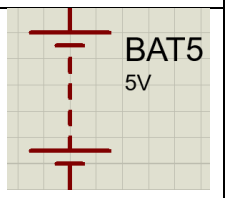
Panel de control



Programación de Python



Equipo utilizado

				
Servomotor	Resistencias	Ground	PIC	Micro-controlador
				
Comparador	Compuertas lógicas	PIR sensor	LED	Voltímetro
				
Relé	Transistor	Contador	Fuente de alimentación de 12V	Fuente de alimentación de 5V